Before the
FEDERAL COMMUNICATIONS COMMISSION

In re Revision of the Commission's Rules to ensure Compatibility With Enhanced 911 Emergency Calling Systems	))))	Docket No. 94-102

SPRINT SPECTRUM L.P. WAIVER REQUEST

In a Public Notice issued on December 24, 1998, the Wireless Telecommunications Bureau of the Federal Communications Commission ("FCC") recommended that Commercial Mobile Radio Service providers that anticipated the need for a waiver of Commission rule 20.18(e) in order to implement a handset based location technology submit such a waiver request by February 4, 1999. Sprint Spectrum L.P. d/b/a Sprint PCS is currently evaluating the potential use of a handset based system to meet the FCC's mandate and, accordingly, submits this waiver request seeking a suspension of the requirements of section 20.18(e) of the Commission's rules as more fully described below.

Background

The FCC's E911 First Report and Order[1] set forth a two phased approach toward implementation of location technology. Phase I requires wireless carriers to be capable of providing the number of a 911 caller as well as the location of the base station receiving the call by April 1, 1998. 47 C.F.R. §20.18(d). Phase II requires that wireless carriers also provide the latitude and longitude of a caller within 125 meters using a root mean square methodology. 47 C.F.R. §20.18(e). The Commission clarified in its E911

[1] Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems CC Docket No. 94-102, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (1996) (E911 First Report and Order).

Reconsideration Order[2] that 125 meters root mean square means that each call made by a wireless end user would have "a 67 percent to 75 percent probability that the reported location would be within a 125 meter radius of the caller's actual location."[3] In Sprint PCS' view, this is not strictly an accuracy specification but a performance criterion encompassing aspects of both accuracy and coverage. The Commission also emphasized that location information should be provided for end users roaming onto a carrier's network.

When the E911 First Report and Order was released, most carriers anticipated that latitude and longitude information would be provided through a network based system.[4] Current information, however, indicates that a handset system using Global Positioning Satellite (GPS) technology may be economically more efficient and technologically superior. Unfortunately, a handset system has inherent limitations which would make literal compliance with the FCC's phase II mandate difficult if not impossible. Specifically, Sprint PCS must provide E911 service to its embedded base of customers and the end users of other carriers that roam on the Sprint PCS network, neither of which would initially have GPS capable handsets. With an appropriate, and limited waiver, however, Sprint PCS believes it can resolve these issues while meeting the goal of the FCC to "ensure the rapid, efficient, and effective deployment of ALI as part of E911, in order to promote the public safety and welfare."[5]

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[2] Revision of the Commission's Rules to ensure Compatibility With Enhanced 911 Emergency Calling Systems CC Docket No. 94-102, Memorandum Opinion and Order, 12 FCC Rcd 22665 (1997) (E911 Reconsideration Order).

[3] E911 Reconsideration Order, 12 FCC Rcd 22665 (1997) (para. 126).

[4] E911 Report and Order, 11 FCC Rcd 18676 (1996) (para. 111).

Potential Solutions

Providing accurate data regarding the specific location of a wireless handset is an extremely complex technological feat. Initial research emphasized triangulation and network based systems to meet this challenge. These systems would be extremely cumbersome and expensive. Estimated costs for the industry have ranged as high as 2 billion dollars and the performance of these systems has been drawn into doubt. In particular, these systems show limited potential for accuracy improvement with time, never offering any hope of providing z-axis information or approaching the accuracy discussed in the E911 First Report and Order.[6] Given the magnitude of the costs and the weakness of these systems in the CDMA environment, Sprint PCS has continued to search for more effective and cost efficient technologies.

One developing solution is the installation of GPS technology into each newly manufactured handset (GPS handsets). Initial results have indicated that such systems may generate much more accurate location information and create less of a financial burden on wireless customers. These results are extremely preliminary, however. No handset manufacturer is producing handsets with this capability and the field tests conducted to date are not conclusive. Potential solutions continue to evolve and no final decision can be reached given current information.

Based on its review of all current phase II proposals, Sprint PCS believes a combination of solutions may present the most effective approach. Handset systems could be introduced which would provide very accurate information for new customers. As

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[5] E911 Reconsideration Order, 12 FCC Rcd at 22725 (para.123).
[6] E911 First Report and Order, 11 FCC Rcd 18676 (1996) (para. 138).

older handsets are replaced, the existing customer base would also benefit from this technology. In the interim, a network software solution may be able to provide more general location information for those customers with non-GPS handsets and end users of other carriers roaming on the Sprint PCS network. This software based network system would not be as accurate as the traditional triangulation devices previously proposed, but it would be substantially less expensive and would provide sufficient accuracy to meet the needs of the public safety community. In addition, early clarification of the FCC's rules regarding handset based systems will increase the likelihood that carriers with common radio technologies can deploy inter-operable handsets that can provide location when roaming on compatible networks.

The Wireless Bureau has suggested that a waiver request proposing such a solution be accompanied with field tests in various geographical environments including urban canyons, suburban and rural locations, documented timetables and milestones, and estimated costs. Unfortunately this information is not currently available. While vendors have made various representations regarding the abilities of their products, no prototypes are currently available for testing, much less information regarding full commercial implementation.

Based upon representations by our vendors, it seems reasonable to expect ALI accuracy comparable to unaided GPS for handset solutions, eventually reaching levels substantially better than traditional network based solutions. With the proposed aided GPS solutions, carriers need the flexibility to choose how to optimize the performance gain to provide the best combination of accuracy and coverage. Although it is unclear when handset manufacturers will begin commercial production, we have been informed

that this may be as early as January 1, 2001. If these forecasts prove to be true, Sprint PCS would be in a position to begin implementation of phase II prior to the October 1, 2001, deadline and provide greater accuracy.

Based upon available information, Sprint PCS should also be able to address the FCC's concerns regarding the service to be provided non-GPS capable handsets and roamers. It is Sprint PCS' understanding that at least one switch manufacturer has proposed a software upgrade that would provide location information within 285 meters without the need for expensive network installations. Again, if this is true, Sprint PCS would be able to provide a safety net to all end users.

To implement such an approach, Sprint PCS would need assurances that phased implementation of phase II technology is acceptable to the FCC. While detailed testing information and schedules are not available, Sprint PCS requests that the FCC grant a conditional waiver which would permit phased implementation of handset technology while using more general software technology as a safety net to end users without GPS capable handsets.

Additional Issues

Implementation of a handset based system will require substantial capital investment, much of that commitment being made long before the implementation deadline for phase II. In order to pursue this solution, the FCC must address additional basic problems developing in the implementation of enhanced 911 technology. First, the Commission should clarify that technology choice is squarely within the authority of the wireless provider. Second, the FCC should reiterate that wireless carriers are entitled to full cost recovery associated with implementation of phase II.

Choice of Technologies

Sprint PCS is a nationwide provider of Commercial Mobile Radio Services, with service in more than 150 major metropolitan markets. In order to implement a cost efficient enhanced 911 system it must be permitted to control the technology it uses. Many public safety agencies, however, are attempting to constrain the method to be used in the provision of this service. In addition to being an inappropriate attempt by local agencies to regulate CMRS service, the end result of such policies will be unnecessary duplication of expense. The FCC should clearly state that wireless carriers are entitled to control the technology used in providing enhanced 911 information.

Cost Recovery

Sprint PCS has made investments in its infrastructure, incurred administrative expenses, and committed to contracts with outside vendors in order to meet the FCC's requirement that it be capable of providing phase I enhanced 911 services by the April 1, 1998, deadline. In addition, more than 30 states have, with the support of the wireless industry, passed E911 surcharges to pay for such services. Yet almost a year since the April 1, 1998, deadline for phase I implementation, very few areas of the country are being provided enhanced 911 services. Given this track record, it is becoming increasingly unclear whether wireless providers will recover costs incurred to implement phase I, much less the hundreds of millions of dollars that will be required to implement phase II.

Now several jurisdictions have suggested that wireless carriers are not entitled to any cost recovery for phase II because of alleged business opportunities presented by wireless location technology. If such a business opportunity did exist, there is no doubt that the competitive nature of the wireless industry would inspire its development. In

reality, however, no wireless carrier has found a business opportunity that would warrant the expenditure of hundreds of millions of dollars for a service that can be duplicated by dozens of other businesses. The FCC must clarify that PSAP jurisdictions cannot avoid the costs associated with phase II technology by creative argument. Without such assurances, early investment in this technology is unlikely.

Conclusion

Although it is two and a half years before phase II of the Commission's Enhanced 911 Order will be implemented, wireless carriers will be reluctant to begin investing the tremendous capital and time necessary for implementation without FCC clarification of certain key issues. The Commission should grant limited waivers that would permit a gradual implementation of Phase II handset technology. The Commission should clarify that wireless service providers are entitled to determine the type of technology to be used in meeting the FCC mandate. Finally, the FCC should reiterate that wireless carriers are entitled to cost recovery for all costs associated with the implementation of Phase II.

Respectfully submitted

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